

BATHYLAGICHTHYS PARINI (OSMERIFORMES: BATHYLAGIDAE) FROM CHILEAN FJORDS: NEW MORPHOLOGICAL DATA

by

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RÉSUMÉ. - *Bathylagichthys parini* (Osmeriformes: Bathylagidae) des fjords du Chili : nouvelles données morphologiques.

Trois exemplaires de *Bathylagichthys parini* Kobylansky, 1990 ont été récoltés dans les fjords du sud du Chili. L'espèce n'était connue que par les trois exemplaires de la série type récoltés à environ 200 milles nautiques au large de la côte sud du Chili (43°S, 81°W, approx.). Ces nouveaux exemplaires ont permis d'améliorer la description originale. Les caractères méristiques coïncident avec ceux de la description originale, mais quelques mesures diffèrent, probablement en raison de la variabilité individuelle. Les Bathylagidae étant des poissons pélagiques, l'espèce pourrait avoir une distribution géographique beaucoup plus grande que celle que l'on croyait.

Key words. - *Bathylagichthys parini* - Bathylagidae - PSE - Record.

The genus *Bathylagichthys* was described by Kobylansky in 1986, and contains five species (Eschmeyer, 1998): *Bathylagichthys greyae* (Cohen, 1958), *B. longipinnis* (Kobylansky, 1985), *B. problematicus* (Lloris & Rucabado, 1985), *B. parini* Kobylansky, 1990 and *B. australis* Kobylansky, 1990.

Bathylagichthys parini was first described on the basis of three specimens caught off the southern coast of Chile (near 43°S, 81°W), about 200 nautical miles west of the South American coastline at depths between 20 and 70 m (Kobylansky, 1990; Fig. 1). An opportunity to observe fresh specimens of this rare fish was presented by the discovery of three new individuals from within fjords in southern Chile, which we use now to improve upon the original description. The original illustration of the species lacks our efforts to provide improved drawings of the species. The objectives of the present study were to complete the description of *B. parini* by obtaining detailed body measurements and counts, recording variance of new data with that of the original description, preparation of new illustrations, and documenting the new geographic distribution represented by this finding. We terminate with a brief comment on the life habits of this species, aided by the recently published data of Balbontín and Bernal (1997) and Bernal and Balbontín (1999).

MATERIALS AND METHODS

Systematics

During the Cimar-Fjord 2 Cruise, three specimens of *Bathylagichthys parini* were caught between 0-200 m with a bongo plankton net. Specimens were initially fixed in 10% seawater-for-

malin, and later preserved in 70° ethanol. Measurements and counts were made on the fishes following Kobylansky (1990), using his order and system of terminology. For this, abbreviations on morphometrics are: TL total length, SL standard length, aD predorsal distance, aA preanal distance, aP prepectoral distance, aV preventral distance, pD distance from origin of dorsal fin base to end of caudal peduncle, pA distance from origin of anal fin base to end of caudal peduncle, Da distance from origin of dorsal fin base to end of adipose fin base, PV pectoventral distance, Hp body depth at base of pectoral fin, Hd body depth at origin of dorsal fin, h least depth of caudal peduncle, lca length of caudal peduncle, lD dorsal fin base length, lA anal fin base length, c head length, o horizontal eye diameter, ao snout length, io interorbital space width (including width of supraorbitals) on a vertical through the middle of the orbit, lmx upper jaw length. For meristics, abbreviations are: D dorsal, A anal, P pectoral, V ventral.

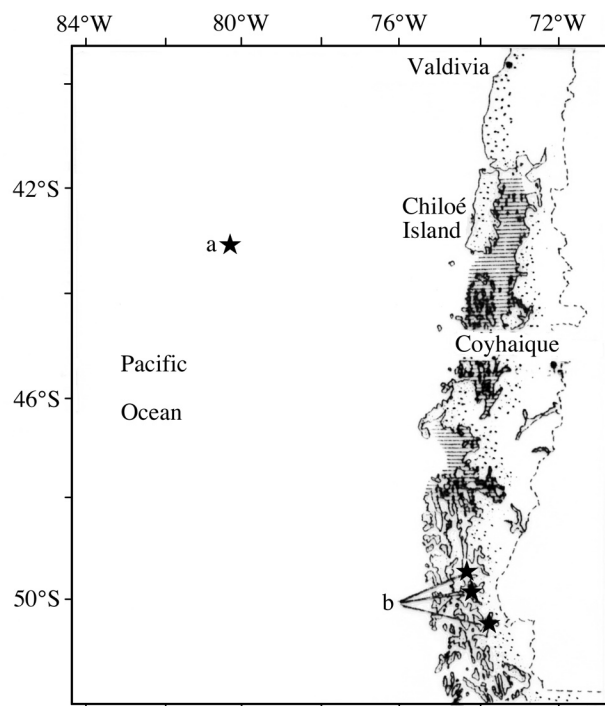


Figure 1. - Locations of capture of *Bathylagichthys parini* : a) Kobylansky (1990) and b) in the present study. The hatched zone represents the area where larval and juvenile stages of this species were collected (Balbontín and Bernal, 1997; Bernal and Balbontín, 1999).

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Table I. - Collection and field data on *Bathylagichthys parini* specimens.

Specimen IZUA-PM-Nº	Standard length (mm)	Date 1996	Location	S. Lat.	W. Long.	Max. bottom depth (m)
2073	126	Nov. 02	Peel Sound	50°43.50'	73°48.20'	200
2074	109	Oct. 23	Eyre Cove	49°31.50'	74°6.49'	596
2075	79	Oct. 23	Wide Cove	49°47.20'	74°21.48'	652

Material examined

These fishes were registered into the collection of marine fishes at the Zoology Institute of the Universidad Austral de Chile (IZUA)(Tab. I).

For a better understanding of selected morphological aspects of the bathylagids, we followed Matallanas (1986). In this case, the following characteristics non abbreviated by Matallanas were used in the work of taxonomical determination of the specimens: snout length, eye diameter, number of branchiostegal rays and number of anal fin rays.

RESULTS

The three new specimens of *B. parini* fell within the range of meristic values presented by Kobylansky (1990) when compared with his original species description (Tab. II). Aside from the length of the caudal peduncle as a percentage of the standard length, the other 18 morphometric characters show increases in variability over those of the original species description. Among these, seven showed percentage values with variation almost identical with those given by Kobylansky (1990). Characteristics which showed the greatest differences included (as % SL) : a) distance from origin of the base of the dorsal fin to the end of the caudal peduncle (pD) , b) pecto-ventral distance (PV) , c) length of the dorsal fin base (ID), d) length of the base of the anal fin (IA), and e) length of the head (c). There were also important differences, expressed as percentages of the length of the head in the horizontal diameter of the eye (o) and length of the upper jaw (lmx) (Tab. II). We also observed that the extension of the suborbital canal toward the nasal region was noteworthy, a characteristic not previously described, which may have specific value.

The dorsal fin is notably higher than the anal fin, with the first three fin rays each progressively increasing in height; the first ray is about 1/4 the length of the 4th , which is the longest. The upper border of the dorsal fin is slightly rounded, terminating abruptly at

the last fin ray. The anal fin is similar in shape to the dorsal fin, but the height and base are smaller. The distance between the pectoral fin base and the pelvic fin is about 2.3 times the length of the pectoral fin base, the rays of which are of greater length. In addition, the length of the pectoral fin is slightly greater than the maximum height of the body. Pelvic fin with a narrow base and a rounded distal portion, and having a length very similar to that of the pectoral fin. The caudal fin is strongly forked; it's upper lobe, measured from the bifurcation to the tip, is similar in length to the pectoral fin (Fig. 2).

There are 40-41 tubulate scales along the lateral line, extending almost in a straight line from the extreme upper part of the operculum to the end of the caudal peduncle. In addition, there are six cycloid scales of relatively large size in a transverse line from the insertion of the dorsal fin to the posterior base of the pelvic fin. The scales are easily dislodged.

DISCUSSION

This is the first record of the family Bathylagidae to be found within the Chilean channels region, 320 km E and 500 km S off the site of the initial discovery. This capture of *B. parini* represents the second record for adults of this species. This also doubles the number of adult specimens in collections and allows for greater recognition of within-species variability than that of the original series, particularly of the morphometry. Available information suggests that this species should be considered endemic to the SE Pacific.

The good condition of the three new specimens allowed a detailed study of form and relative size of the fins, as well as of transverse and lateral line scale numbers, allowing better illustration (Fig. 2), than available from the original study. The differences found reflect phenotypic variability. The present report now extends the information available on this poorly known species extending our capacity for defining its taxonomy, systematics, and possibly, distribution.

Balbontin and Bernal (1997) and Bernal and Balbontin (1999)

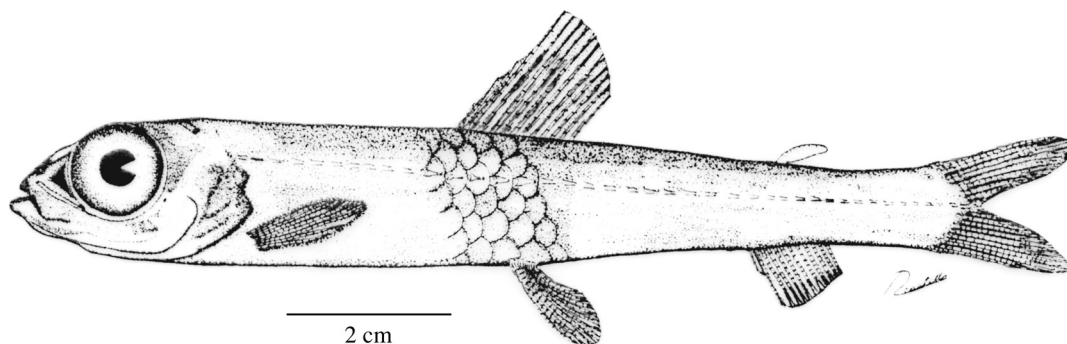


Figure 2. - Specimen of *Bathylagichthys parini*, IZUA-PM-2073, 126 mm TL. Drawn by Rodrigo Castillo.

Table II. - Comparison of meristic and morphometric characters in three specimens of *Bathylagichthys parini* from the present study, with data on three specimens provided by Kobylansky (1990).

Characters	IZUA- PM-2073	IZUA- PM-2074	IZUA- PM-2075	Kobylansky (1990)
TL (mm)	126	109	79	
SL (mm)	115	93.5	66	(119.5, 80.0, 87.0)
Morphometrics				
As % SL:				
aD	45.6	45.9	50.4	45.7-47.1
aA	75.6	78.4	79.5	79.5-81.2
aP	25.3	25.4	28.8	22.0-24.9
aV	53.6	55.4	57.6	55.9-57.3
pD	49.3	52.7	52.1	53.6-54.4
pA	19.8	20.2	21.0	18.7-20.3
Da	37.2	35.9	36.8	36.8-38.5
PV	28.8	28.3	30.6	30.6-34.1
Hp	11.7	11.7	14.8	12.3-13.7
Hd	12.7	11.9	14.2	13.2-17.6
h	7.3	6.8	6.5	7.2-8.1
Lca	11.5	10.9	10.9	10.2-11.5
ID	13.1	12.7	13.5	10.2-11.9
IA	8.3	8.1	10.6	7.8-8.0
c	24.8	25.1	28.5	21.4-24.5
As %HL:				
o	36.8	37.8	42.0	34.4-35.6
ao	26.5	26.4	30.3	23.8-35.6
io	32.3	28.9	31.3	28.9-31.3
lmx	22.8	22.1	21.8	19.5-21.0
Meristics				
D	13	13	12	12-14
A	11	11	11	11-12
P	11	11	11	10
V	10	10	10	9-10
Branchiostegals	3	3	3	3
Gillrakers	8+1+18	8+1+17	Not seen	8-9+1+16-18

recorded the presence of large numbers of larvae of *B. parini* in Patagonian channels between 42° and 47° S (Fig. 1). Therefore, the life cycle of this fish may be completed in this region without the need for adults to reach the open sea where the first specimens were collected. The observation of the gonads of the largest two specimens showed no sexual development in the specimen 109 mm TL and testes in development close to reproduction in the specimen 126 mm TL. It is more likely that *B. parini* is using the Chilean fjords as a spawning and/or nursery area. Only the largest of these specimens had some gut content, which was almost full of some decapod crustacean developmental stage.

Although the type specimens of this species were caught between 20 and 70 m depth, the maximum possible (bottom) depths of capture of the present described specimens were between

zero and 200 m. However, the actual depths of capture cannot be given due to the fact that the bongo net was towed obliquely in this study.

B. parini is the only species of the genus known from Chilean waters.

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REFERENCES

- BALBONTIN F. & R. BERNAL, 1997. - Distribution and abundance of ichthyoplankton in the southern zone of Chile. *Cienc. Tecnol. Mar.*, 20: 155-163. (In Spanish, with English abstract).
- BERNAL R. & F. BALBONTIN, 1999. - Fjords ichthyoplankton between Golfo de Penas and Magellan Strait and environmental associated factors. *Cienc. Tecnol. Mar.*, 22: 143-154. (In Spanish, with English abstract).
- COHEN D.M., 1958. - Two new species of *Bathylagus* from the Western North Atlantic, with notes on other species. *Breviora*, 98: 1-9.
- ESCHMEYER W.N. (Ed.), 1998. - Catalog of Fishes. Center for Biodiversity Research and Information. *Calif. Acad. Sci., Spec. Publ.*, 3: 1289 p.
- KOBYLIANSKY S.G., 1985. - Materials for revision of the genus *Bathylagus* Günther (Bathylagidae); the group of "light" *Bathylagus* species. *Vopr. Ikhtiol.*, 24(1): 51-67. (In Russian).
- KOBYLIANSKY S.G., 1986. - Materials for a revision of the family Bathylagidae (Teleostei: Salmoniformes). *Trudy Inst. Okeanol., Akad. Nauk. SSSR*, 121: 6-50. (In Russian).
- KOBYLIANSKY S.G., 1990. - Two new species of the genus *Bathylagichthys* Kobylansky (Bathylagidae, Salmoniformes) from the Southern Hemisphere Subpolar Waters. *J. Ichthyol.*, 30(5): 21-27.
- LLORIS D. & J. RUCABADO, 1985. - A new species of *Nansenia* (*N. problematica*) (Salmoniformes: Bathylagidae) from the Southeast Atlantic. *Copeia*, 1985: 141-145.
- MATALANAS J., 1986. - Notes ostéologiques sur *Nansenia problematica* Lloris et Rucabado, 1985, avec discussion de son statut générique. *Cybium*, 10(4): 389-394.

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